Beyond the Periphery: Central Auditory Processing in Parkinsonian Disorders

E. de Groote, K. de Keyser, A. Bockstael, D. Botteldooren, P. Santens, M. de Letter (Ghent, Belgium)

Meeting: 2019 International Congress

ABSTRACT NUMBER: 845

Keywords: Evoked potentials, Parkinsonism

Session Information

Date: Tuesday, September 24, 2019

Session Time: 1:45pm-3:15pm

Session Title: Parkinsonisms and Parkinson-Plus

Location: Agora 3 West, Level 3

Objective: This systematic review provides an overview of behavioral and event-related potential (ERP) studies investigating central auditory processing in patients with Parkinson's disease (PD), progressive supranuclear palsy (PSP) and multiple system atrophy (MSA).

Background: Increasing evidence shows that altered auditory processing needs to be considered in the sensory-perceptual spectrum of parkinsonian disorders. Auditory alterations in are an important issue, as they are likely to contribute to the well-known communication deficits in parkinsonian disorders, which have a profound impact on the wellbeing of patients and their caregivers. To date, it is unclear which behavioral and neurophysiological correlates are associated with altered central auditory processing in parkinsonian disorders.

Method: The process of a systematic review as described by the Cochrane Handbook for Systematic Reviews of Interventions was followed. A total of 7 682 records were retrieved from four databases (MEDLINE, PubMed, Web of Science and Cochrane Library), and 84 studies met the criteria to be included in this review.

Results: Literature on auditory processing in PD was extensive (n = 76), whereas auditory processing in PSP (n = 9) and MSA (n = 5) has been studied less frequently. In PD, the data yielded three main results. First, psychoacoustic experiments suggested a dissociation between the perception of intensity and duration, which appeared to be abnormal, and preserved perceptual processing of pitch. Second, patients with PD showed impaired auditory brainstem processing at both the behavioral and neurophysiological level. Third, decreased habituation of subcortical and cortical auditory ERPs indicated disturbed auditory gating in PD. Notably, the auditory alterations did not appear to affect speech perception. In PSP, prolonged and/or attenuated auditory ERPs have been found at the brainstem, subcortical and cortical level, including altered cortical responses to unexpected deviant tones. In MSA, one behavioral study demonstrated abnormal temporal auditory perception, whereas neurophysiological studies have not shown clear auditory alterations.

Conclusion: This systematic review confirms distinct alterations of central auditory processing in parkinsonian disorders. However, our current understanding of central auditory processing in parkinsonian disorders is far from complete and warrants further investigation, especially in PSP and MSA.

To cite this abstract in AMA style:

E. de Groote, K. de Keyser, A. Bockstael, D. Botteldooren, P. Santens, M. de Letter. Beyond the Periphery: Central Auditory Processing in Parkinsonian Disorders [abstract]. *Mov Disord.* 2019; 34 (suppl 2).